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CLAIMS:

1. A semi-submersible offshore platform (1) comprising:
 - a substantially ring-shaped lower pontoon (2);
 - 10 - at least three columns (4) extending upwardly from said lower pontoon (2), and
 - an upper beam structure (5) connecting upper portions (6) of the columns (4) with each other,
characterized in that said upper beam structure (5) forms a system of lateral beams (7), arranged in such a way as to allow one or more operation modules (8) to be placed upon or adjacent to the columns (4) next to the lateral beams (7), either directly on the columns (4), on brackets (10) connected to the columns (4) or on a deck arranged between upper ends of the columns (4) and said operation modules (8), the lateral beams (7) protruding vertically upwards above a bottom plane (11) of the operation modules (8), said operation modules (8) containing, for example, 20 hydrocarbon processing equipment and/or accommodation quarters.
 - 2. A semi-submersible offshore platform (1) according to claim 1, **characterized in** that said bottom plane (11) of the operation modules (8) substantially coincides with a lowest through-going deck (9) of the offshore platform (1).
 - 25 3. A semi-submersible offshore platform (1) according to claim 1 or 2, **characterized in** that said system of lateral beams (7) is arranged in such a way as to allow the operation modules (8) to extend between two adjacent columns (4).
 - 30 4. A semi-submersible offshore platform (1) according one or more of the preceding claims, wherein the offshore platform (1) has four or six columns (4) and a substantially rectangular pontoon (2), and wherein a forward column pair is located on the pontoon with one column thereof on each side of a longitudinal center-line (CL), and an aft column pair is located on the pontoon (2) with one column (4) 35 thereof on each side of said center-line (CL), **characterized in** that said system of lateral beams (7) is substantially H-shaped – when observed from above – in such a way that the vertical posts of the “H” correspond to two or more longitudinal beams (7a, 7b) extending on each side of said center-line (CL) from the aft column pair to

the forward column pair, whilst the horizontal mid-post of the "H" corresponds to one or more transversal beams (7c, 7d, 7e).

5. A semi-submersible offshore platform (1) according to claim 4, **characterized in**
5 that the horizontal mid-post of the "H" corresponds to an at least partially vertically open grid section (12) extending between said longitudinal beams (7a, 7b).

10 6. A semi-submersible offshore platform (1) according one or more of claims 1 - 3, wherein the offshore platform (1) has four or six columns (4) and a substantially rectangular pontoon (2), and wherein a starboard column pair is located on the pontoon with one column thereof on each side of a transversal midship-line (ML) through the offshore platform (1), and a port column pair is located on the pontoon (2) with one column (4) thereof on each side of said midship-line (ML), **characterized in** that said system of lateral beams (7) is substantially H-shaped -
15 when observed from above - in such a way that the vertical posts of the "H" correspond to two or more transversal beams (7g, 7h) extending on each side of said midship-line (ML) from the port column pair to the starboard column pair, whilst the horizontal mid-post of the "H" corresponds to one or more longitudinal beams (7i, 7j, 7k).

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7. A semi-submersible offshore platform (1) according to claim 6, **characterized in** that the horizontal mid-post of the "H" corresponds to an at least partially vertically open grid section (12) extending between said transversal beams (7g, 7h).

25 8. A semi-submersible offshore platform (1) according one or more of claims 1 - 3, wherein the offshore platform (1) has three columns (4) and a substantially triangular pontoon (2), **characterized in** that said system of lateral beams (7) is substantially T-shaped - when observed from above - in such a way that the horizontal part of the "T" corresponds a first beam (7A) extending between two
30 columns (4), and wherein the vertical part of the "T" corresponds to a second beam (7B) which extends from a third column (4) to a mid-portion (29) of said first beam (7A).

35 9. A semi-submersible offshore platform (1) according to claim 8, **characterized in** that a third beam (7C) is arranged as a "foot" of the T, said third beam (7C) being substantially perpendicular to the second beam (7B).

10. A semi-submersible offshore platform (1) according one or more of the preceding claims, **characterized in** that one or more of the lateral beams (7) are formed as a torsion box (15), said torsion box (15) being wider than a typical beam (7) in the system of lateral beams (7).

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11. A semi-submersible offshore platform (1) according to claim 10, **characterized in** that at least one side-wall (16) of said torsion box (15) coincides with a side-surface (17) of a column (4).

10 12. A semi-submersible offshore platform (1) according to claim 10 or 11, **characterized in** that the torsion box (15) is sealed from water-intrusion in such a way that it provides additional reserve buoyancy to the offshore platform (1).

15 13. A semi-submersible offshore platform (1) according to claims 10 - 12, **characterized in** that the torsion box (15) has a width which corresponds to the width of a column (4) which supports the torsion box (15).

20 14. A semi-submersible offshore platform (1) according to claims 10 - 12, **characterized in** that the torsion box (15) is narrower than a column (4) which supports the torsion box (15), at least one side-wall (16) of the torsion box coinciding with an internal bulkhead (18) in the column (4).

25 15. A semi-submersible offshore platform (1) according to claim 16, **characterized in** that said internal bulkhead (18) is a center-line bulkhead in the column (4).

16. Method for positioning an operation module on the semi-submersible offshore platform (1) described in claim 1, **characterized in** that the offshore platform (1) is ballasted to a level at which a floating barge (20) or other vessel, with the operational module (8) placed transversely on its deck (21), may be floated in between two columns (4) to a position in which two end-portions (22) of the operation module (8) are placed above a respective support surface (23) on the columns (4), on brackets (10) connected to the columns (4) or on a deck (9) arranged between upper ends (6) of the columns (4) and said operation modules (8), said barge (20) or other vessel then being ballasted so that the operation module (8) is set down on the offshore platform (1).

17. Method for positioning an operation module (8) on the semi-submersible offshore platform (1) described in claim 1, **characterized in** that the offshore platform (1) is ballasted to a level at which a floating barge (20) or other vessel, with the operational module (8) placed transversely on its deck (21), may be floated in
- 5 between two columns (4) to a position in which two end-portions (22) of the operation module (8) are placed above a respective support surface (23) on the columns (4), on brackets (10) connected to the columns (4) or on a deck (9) arranged between upper ends (6) of the columns (4) and said operation module (8), the offshore platform (1) then being de-ballasted so that the operation module (8) is
- 10 lifted off said barge (20) or other vessel.